

# Aquatic Ecosystem Findings

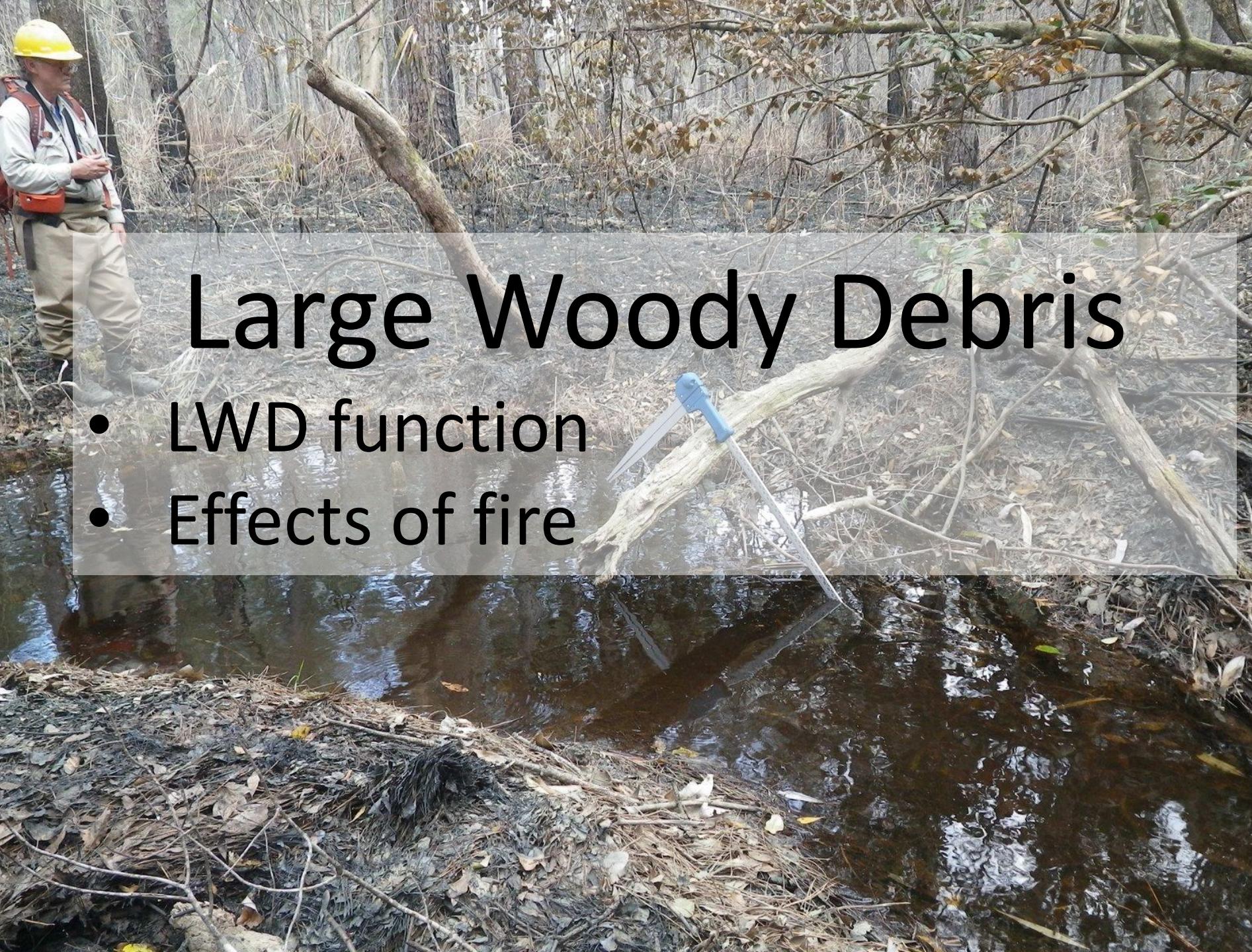
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# 1996 FMNF Forest Plan

Limited direction on:

- Aquatic species
- Aquatic Communities
- Aquatic habitat
- Riparian management

MAR 27 2006



# Large Woody Debris

- LWD function
- Effects of fire

# Species of Conservation Concern

- 10 fish, 8 mussels, 2 crayfish
- T&E, G1-G3, S1-S2, and those identified in the SCCWCS
- Forest distribution



# At Risk Species

Species		Status	Aquatic Ecosystem Occurrence	
Scientific Name	Common Name		Streams and Rivers	Lentic Systems
<b>Fish</b>				
<i>Acipenser brevirostrum</i>	shortnose sturgeon	E	x	
<i>Acipenser oxyrinchus</i>	Atlantic sturgeon	E	x	
<i>Chologaster cornuta</i>	swampfish	SCC	x	x
<i>Anguilla rostrata</i>	American eel	SCC	x	
<i>Enneacanthus chaetodon</i>	blackbanded sunfish	SCC	x	x
<i>Enneacanthus obesus</i>	banded sunfish	SCC	x	x
<i>Alosa aestivalis</i>	Blueback herring	FC	x	x
<i>Alosa pseudoharengus</i>	alewife	FC	x	x
<i>Notropis chalybaeus</i>	ironcolor shiner	SCC	x	x
<i>Elassoma evergladei</i>	Everglades pygmy sunfish	SCC	x	x
<i>Ameiurus catus</i>	white catfish	SCC	x	x
<i>Ameiurus platycephalus</i>	Flat bullhead	SCC	x	x
<i>Morone saxatilis</i>	striped bass	SCC	x	x
<i>Etheostoma serrifer</i>	sawcheek darter	SCC	x	x
<b>Crayfish</b>				
<i>Procambarus aenetus</i>	Coastal Plain crayfish	SCC	x	x
<i>Procambarus enoplosternum</i>	black mottled crayfish	SCC	x	x
<b>Mussels</b>				
<i>Elliptio angustata</i>	Carolina lance	SCC	x	
<i>Elliptio complanata</i>	Eastern elliptio	SCC	x	x
<i>Elliptio congenera</i>	Carolina slabshell	SCC	x	
<i>Elliptio fisheriana</i>	Northern lance	SCC	x	
<i>Elliptio icterina</i>	variable spike	SCC	x	x
<i>Elliptio roanokensis</i>	Roanoke slabshell	SCC	x	
<i>Lampsilis splendida</i>	rayed pink fatmucket	SCC	x	x
<i>Ligumia nasuta</i>	Eastern pondmussel	SCC	x	x

Status column denotes E = Federally Endangered, FC = Candidate Species for Federal Listing, SCC = Species of Conservation Concern (potential)

# Species Diversity

## (Headwaters)

- Headwater sampling 1993 and 5X between 2002 and 2010 across 10 watersheds
- Very little change in diversity detected
- 35 species 1993
- 37 species 2002-10
- 2010 Drought



# Mollusk

- Population condition and trends are unknown
- Surveys conducted across all Forest watersheds in 2011 by the Catena Group
- 38 streams sampled – 26 contained mollusk
- 13 mussel and 8 snail species collected
- Diversity generally low except in a few streams with wide riparian buffers



# Crayfish

- Population condition and trends are unknown
- Surveys conducted across all Forest watersheds
- 84 streams sampled – 72 contained crayfish



*Procambarus (S.) troglodytes* Form I male

D. R. Jones 2011

# Aquatic Nuisance Species

- South Carolina Aquatic Invasive Species Management Plan (2008)
- 8 known to occur on the forest
- SCDNC report increases in ANS and impacting native species and habitats
- Climate change

Aquatic Nuisance Species		Forest Occurrence	
Common Name	Scientific Name	Present	Future
<b>Fish</b>			
Spotted bass	<i>Micropterus punctulatus</i>		x
Flathead catfish	<i>Pylodictis olivaris</i>	x	
Blue catfish	<i>Ictalurus furcatus</i>	x	
Green sunfish	<i>Lepomis cyanellus</i>		x
Northern snakehead	<i>Channa argus</i>		x
Asian swamp eel	<i>Monopterus albus</i>		x
Silver carp	<i>Hypophthalmichthys molitrix</i>		x
Bighead carp	<i>Hypophthalmichthys nobilis</i>		x
Black carp	<i>Mylopharyngodon piceus</i>		x
Grass carp (non triploid)	<i>Ctenopharyngodon idella</i>		x
<b>Animals</b>			
Nutria	<i>Myocastor coypus</i>		x
Red-eared slider	<i>Trachemys scripta elegans</i>		x
<b>Plants</b>			
Hydrilla	<i>Hydrilla verticillata</i>		x
Water hyacinth	<i>Eichhornia crassipes</i>		x
Phragmites	<i>Phragmites australis</i>	x	
Water lettuce	<i>Pistia stratiotes</i>		x
Giant salvinia	<i>Salvinia molesta</i>		x
Alligatorweed	<i>Alternanthera philoxeroides</i>	x	
Brazilian elodea	<i>Egeria densa</i>		x
Water primrose	<i>Ludwigia uruguayensis</i>	x	

Aquatic Nuisance Species		Forest Occurrence	
Common Name	Scientific Name	Present	Future
Insects			
Asian tiger mosquito	<i>Aedes albopictus</i>	x	
Asian mosquito	<i>Ochlerotatus japonicus</i>		x
Crustaceans			
Red swamp crayfish	<i>Procambarus clarkii</i>		x
Mollusks			
Viviparid snail	<i>Viviparus subpurpureus</i>		x
Viviparid snail	<i>Bellamya japonica</i>		x
Island applesnail	<i>Pomacea insularum</i>		x
Zebra mussel	<i>Dreissena polymorpha</i>		x
Asian clam	<i>Corbicula fluminea</i>	x	

# Hydrologic Modification

## Dams

- Dams are present in each of the 28 subwatersheds
- Number of dams/dikes range from 1 to 216 /WS
- Mean = 100 structures

## Roads

- Road density ranges from 0.5 – 6 miles/m<sup>2</sup>
- Roads made up 0.6% - 4% of riparian acreage

